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Students' Department

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AMERICAN INSTITUTE EXAMINATIONS

[Note.—The fact that these solutions appear in The Journal of Accountancy should not cause the reader to assume that they are the official solutions of the board of examiners. They represent merely the opinion of the editor of the *Students' Department*.]

Examination in Accounting Theory and Practice—Part I

May 14, 1931, 1:30 P. M. to 6:30 P. M.

No. 3 (12 points):

The C Fruit-Growers' Association purchased equipment for which $12,000 was paid in cash on January 1, 1927, and four notes were also given, as of this date, each in amount $12,000 and payable January 1, 1928, 1929, 1930 and 1931 respectively.

The face value of each note included principal and interest (not compounded) at the rate of 7 per cent. per annum.

At December 31, 1930, all the notes, except that due January 1, 1931, had been paid as they fell due, and the payments—together with the initial cash payment—had been charged to the account "association equipment."

An audit of the books of account and records being conducted as of December 31, 1930, it was decided to ascertain the actual net profit for each of the years mentioned.

With this object in view, prepare whatever entries are necessary to adjust the accounts in view of the conditions described.

Solution:

The bookkeeper erred in charging the amounts paid to "association-equipment" account inasmuch as the notes included both principal and interest. The amount of the principal of the notes issued and the payment of $12,000 made on January 1, 1927, should be capitalized, and the interest paid and accrued should be charged against operations. The amount of both principal and interest in the four notes issued may be determined by the candidate as follows:

The note due within a year, that is on January 1, 1928, is made up of principal

of	100%	
and interest on principal of	7	
or an amount equal to	107%	of the principal.

The amount of the note, $12,000, can now be divided into the principal and interest elements:

Principal	100%	$11,214.95
Interest	7	785.05
Totals	107%	$12,000.00

Table showing notes issued and amounts paid for equipment and interest

Payment				Periods chargeable with interest			
Date	Amount	Principal	Interest	1927	1928	1929	1930
January 1, 1927	$12,000.00	$12,000.00					
January 1, 1928	12,000.00	11,214.95	$ 785.05	$ 785.05			
January 1, 1929	12,000.00	10,526.32	1,473.68	736.84	$ 736.84		
January 1, 1930	12,000.00	9,917.35	2,082.65	694.21	694.22	$ 694.22	
January 1, 1931	12,000.00	9,375.00	2,625.00	656.25	656.25	656.25	$656.25
Totals	$60,000.00	$53,033.62	$6,966.38	$2,872.35	$2,087.31	$1,350.47	$656.25

The notes due on January 1, 1929, 1930, and 1931 contain principal elements of 100 per cent. and interest elements of 14 per cent., 21 per cent. and 28 per cent. thereon respectively. The method outlined above may be followed in ascertaining the amounts of interest and principal in these notes.

The problem requires the candidate to prepare whatever entries are necessary to adjust the accounts. The notes had not been recorded, no interest had been charged, and the payments made had been charged to "association-equipment" account. The adjusting journal entries follow:

(1)

Equipment	$53,033.62	
Prepaid interest	6,966.38	
Notes payable		$48,000.00
Association equipment (cash)		12,000.00

To record the down payment of $12,000, and the four notes of $12,000 each (due in one, two, three and four years) issued to the X Company on January 1, 1927.

(2)

Notes payable	36,000.00	
Association equipment		36,000.00

To transfer payments of $12,000 each made on January 1, 1928, 1929, and 1930 charged to association-equipment account.

(3)

Surplus	6,310.13	
Prepaid interest		6,310.13

To charge surplus with the interest chargeable to the following periods:

1927	$2,872.35
1928	2,087.31
1929	1,350.47
	$6,310.13

(4)

Surplus (profit and loss)	656.25	
Prepaid interest		656.25

To charge surplus (profit and loss) with the interest for the year 1930 on the note of $12,000 due January, 1931.

As such information as the expected life, residual value, if any, and the amount of the depreciation written off is not given in the problem, the candidate can not prepare any necessary adjusting entries to charge depreciation on the equipment to the operations of each of the years mentioned.

No. 4 (22 points):

Mr. Andrews, who is a client of yours and a stockholder of the B Company, although not active in its management, presents to you the comparative statements and other data on the following pages. He advises that he has been a stockholder of this company for several years and has received $1.00 per share in dividends consistently.

The president of the company, who is "getting along in years," has offered to sell him a substantial block of stock at book value and has explained to Mr. Andrews that the loss in 1930 was due to the general depression.

Your client asks you to make a detailed analysis of the statements and give him your opinion as to whether or not it would be a good investment; further, to advise him in detail of whatever may be reasonably interpreted from the statements as to the company's financial condition, efficiency, management policies, and prospects, together with suggestions as to what should be watched or corrected, etc.

List the principal points that you would discuss in a letter to your client.

Regarding the co-insurance clause, show how much the company would collect in cases of a fire loss of $100,000 and one of $600,000.

NOTE.—Although the company deals in stoves, assume that this fact makes no difference as to what might be destroyed by fire.

B COMPANY

Comparative balance-sheets

Assets	December 31 1930	December 31 1929	Increase *Decrease*
Cash	$ 40,000	$ 15,000	$ 25,000
Notes receivable—customers' coal stoves and ranges	17,500	2,000	15,500
Customers' accounts—gas stoves and ranges	65,000	45,000	20,000
Customers' accounts—coal stoves and ranges	140,000	115,000	25,000
Merchandise inventories—gas stoves and ranges	110,000	145,000	*35,000*
Merchandise inventories—coal stoves and ranges	275,000	225,000	50,000
	$ 647,500	$547,000	$100,500
Real estate, machinery and equipment: *less*, allowance for depreciation (a)	375,000	325,000	50,000
Salesmen's drawing accounts	15,000		15,000
Deferred expenses	5,000	2,000	3,000
	$1,042,500	$874,000	$168,500
Liabilities			
Notes payable—bank (secured, for money borrowed)	$ 5,000		$ 5,000
Notes payable—bank (unsecured, for money borrowed)	300,000	$100,000	200,000
Accounts payable and accrued	75,000	50,000	25,000
	$ 380,000	$150,000	$230,000
Capital stock (par value $10)	450,000	450,000	
Surplus	212,500 (b)	274,000 (b)	*61,500*
	$1,042,500	$874,000	$168,500

(a) Appraised sound values:

Land	$ 50,000	$ 50,000
Foundations	10,000	10,000
Buildings, machinery and equipment	400,000	340,000

(b) Regular annual dividend of $45,000 paid during the year.

B Company

Statement of income and expense

	1927	1928	1929	1930
Net sales—coal stoves and ranges	$ 925,000	$ 900,000	$ 825,000	$ 675,000
Net sales—gas stoves and ranges (a)	400,000	500,000	600,000	725,000
	$1,325,000	$1,400,000	$1,425,000	$1,400,000
Cost of goods sold	875,000	960,000	1,025,000	1,026,500
Gross profit	$ 450,000	$ 440,000	$ 400,000	$ 373,500
Salesmen's drawings, commissions and expense—coal stoves and ranges	$ 92,000	$ 90,000	$ 85,000	$ 75,000
Salesmen's (two) salaries and expenses—gas stoves and ranges	30,000	37,500	50,000	70,000
President's salary	20,000	20,000	20,000	20,000
Other expenses (including federal income taxes)	225,000	225,000	225,000	225,000
	$ 367,000	$ 372,500	$ 380,000	$ 390,000
Net profit (or loss)	$ 83,000	$ 67,500	$ 20,000	$ *16,500*

(a) Sold entirely to a utility company and to a mail-order house.

Note.—At December 31, 1930, the company carried blanket insurance coverage on buildings and contents to the total amount of $500,000 with a 90 per cent. co-insurance clause.

Solution:

The following points should be discussed in the letter to Mr. Andrews relative to his proposed additional investment in B Company.

Results from Operations

Sales. Although the total sales of the company increased approximately 1.75 per cent. during the four-year period ended December 31, 1930, the sales of coal stoves and ranges decreased rather steadily from 69.81 per cent. to 48.21 per cent. Sales of gas stoves and ranges increased from 30.19 per cent. to 51.79 per cent. The shift in sales from the coal stoves and ranges to gas stoves and ranges in itself might not be considered objectionable if due only to a change in customer demand, but inasmuch as the gas equipment is sold to but two customers, the company might find itself in an embarrassing situation should these two outlets be suddenly closed to its product.

Cost of sales. The cost of sales for the period increased from 66.04 per cent. to 73.32 per cent. with a corresponding reduction in the gross profit rate from 33.96 per cent. to 26.68 per cent. From the information at hand, it is not possible to determine whether the decrease in the rate of gross profit is due to lower selling prices per unit, or higher costs of production. It would seem reasonable to assume that the reduction in the rate was due largely to a lower gross profit per unit on the gas equipment produced and sold. The resulting reduction in the rate of 7.28 per cent. for the period represents a decrease in gross profit of $101,920 (7.28 per cent. of $1,400,000) for the year 1930 alone. Obviously, the management was unable to cope with the change in demand from coal to gas heaters, and has not solved the problem of maintaining profitable operations by selling its new product through the mail order house and the utility.

Expenses. The total expenses show a net increase of $23,000. However, the salesmen's drawings, commissions, and expenses applicable to the sales of gas equipment increased $40,000, while the same expenses chargeable to the coal equipment decreased $17,000. The rate of salesmen's expenses to sales of the gas stoves and ranges increased from 7.5 per cent. to 9.65 per cent.

Profits. As a result of the decrease in gross profit and the increase in expenses, the net profit before dividends, but after provision for income taxes decreased from $83,000 or 6.26 per cent. of sales to a net loss of $16,500, or 1.18 per cent. of sales during the period.

Financial Condition

Working capital. During the year ended December 31, 1930, the working capital of the company was reduced by $129,500 as follows:

Increase in fixed assets	$ 50,000
Loss for the year 1930	16,500
Dividends paid during 1930	45,000
Salesmen's drawing accounts	15,000
Increase in deferred expenses	3,000
Total	$129,500

In addition to the decrease in the amount of the working capital during the year, the working capital ratio also declined from $3.65 to $1.70 of current assets to each dollar of current liabilities.

Receivables. Although the total sales decreased only 1.75 per cent., the receivables increased 37.35 per cent. during the year. An analysis of the accounts shows:

	1930	1929
Coal stoves and ranges:		
Sales	$675,000	$825,000
Receivables	157,500	117,000
Per cent. of sales uncollected	23.33%	14.18%
Days of sales uncollected	85	52
Gas stoves and ranges:		
Sales	$725,000	$600,000
Receivables	65,000	45,000
Per cent. of sales uncollected	8.97%	7.50%
Days of sales uncollected	33	27

The foregoing analysis indicates that collections have become considerably slower during the year, particularly in the first group, or that doubtful or uncollectible accounts are being carried as collectible assets.

Inventories. The following analysis of the inventories shows that the stock of coal stoves and ranges has increased 22.22 per cent. even though the sales for the year declined 18.18 per cent. The management is subject to criticism for permitting this inventory to increase in the face of the steadily declining demand for the coal heaters. It is possible, also, that the increase may be due to an accumulation of unsalable, or obsolete models, or to higher cost valuations.

	1930	1929	Per cent. of increase or *decrease*
Coal stoves and ranges:			
Sales	$ 675,000	$ 825,000	*18.18*%
Inventories	275,000	225,000	22.22
Gas stoves and ranges:			
Sales	725,000	600,000	20.83
Inventories	110,000	145,000	*24.14*
Total sales	1,400,000	1,425,000	*1.75*
Total inventories	385,000	370,000	4.05

Fixed assets. Apparently, additional facilities were needed to care for the increased demand for gas stoves, for despite a more or less fixed volume of sales, the management spent approximately $60,000 for buildings, machinery and equipment during the year. With the falling off in the demand for coal stoves and ranges, it seems reasonable to assume that the machinery, buildings and equipment necessary to manufacture that product is becoming more inactive.

Liabilities. Because of the slowing up of collections, the increase in the inventories and plant, and the payment of the dividends, the liabilities of the company were increased by $230,000. It is doubtful in the circumstances whether the banks will increase the line of credit, or renew the unsecured notes.

Summary

The accountant should advise his client, Mr. Andrews, to forego any additional investment in B Company for the present. He might suggest that a survey of the consumer market be made to ascertain whether the management should change its policy of selling through the mail order house and the utility, or should seek additional outlets of the same kind. A study should be made of the plant and of the selling organization in an effort to reduce production and distribution costs. A careful inventory should be taken, and every effort should be made to dispose of the stock of goods on hand. It would be well to enclose with the letter exhibits similar to those following. The credit department should stress the collection of outstanding accounts, particularly those now due, rather than expend its time and effort on those accounts which are uncollectible. An attempt should be made to obtain additional capital for a term of years by mortgaging the plant, and dividend payments should be discontinued. Insurance equal to 90 per cent. of the insurable value of the buildings and contents should be obtained immediately.

Exhibit A

B Company

Comparative statement of profit and loss with percentage analysis for the four years ended December 31, 1930

	1927		1928		1929		1930	
	Amount	Per cent. of sales	Amount	Per cent. of sales	Amount	Per cent. of sales	Amount	Per cent. of sales
Net sales:								
Coal stoves and ranges	$ 925,000	69.81%	$ 900,000	64.29%	$ 825,000	57.89%	$ 675,000	48.21%
Gas stoves and ranges	400,000	30.19	500,000	35.71	600,000	42.11	725,000	51.79
Total net sales	$1,325,000	100.00%	$1,400,000	100.00%	$1,425,000	100.00%	$1,400,000	100.00%
Cost of goods sold	875,000	66.04	960,000	68.57	1,025,000	71.93	1,026,500	73.32
Gross profit	$ 450,000	33.96%	$ 440,000	31.43%	$ 400,000	28.07%	$ 373,500	26.68%
Salesmen's drawing account, commissions and expenses:								
Coal stoves and ranges	$ 92,000	6.94%	$ 90,000	6.43%	$ 85,000	5.97%	$ 75,000	5.36%
Gas stoves and ranges	30,000	2.27	37,500	2.68	50,000	3.51	70,000	5.00
President's salary	20,000	1.51	20,000	1.43	20,000	1.40	20,000	1.43
Other expenses (including federal income taxes)	225,000	16.98	225,000	16.07	225,000	15.79	225,000	16.07
Total expenses	$ 367,000	27.70%	$ 372,500	26.61%	$ 380,000	26.67%	$ 390,000	27.86%
Net profit or *Loss*	$ 83,000	6.26%	$ 67,500	4.82%	$ 20,000	1.40%	*$ 16,500*	*1.18%*

B Company

Exhibit B

Comparative statement of working capital December 31, 1930, and 1929

	December 31, 1930		December 31, 1929		Increase—*Decrease*	
	Amount	Per cent. of total	Amount	Per cent. of total	In Amount	In per cent.
Current assets:						
Cash	$ 40,000	6.18%	$ 15,000	2.74%	$ 25,000	3.44%
Receivables:						
Coal stoves and ranges:						
Notes	$ 17,500	2.70%	$ 2,000	.37%	$ 15,500	2.33%
Accounts	140,000	21.62	115,000	21.02	25,000	.60
Total	$157,500	24.32%	$117,000	21.39%	$ 40,500	2.93%
Gas stoves and ranges—accounts	65,000	10.04	45,000	8.23	20,000	1.81
Total receivables	$222,500	34.36%	$162,000	29.62%	$ 60,500	4.74%
Inventories:						
Coal stoves and ranges	$275,000	42.47%	$225,000	41.13%	$ 50,000	1.34%
Gas stoves and ranges	110,000	16.99	145,000	26.51	*35,000*	*9.52*
Total inventories	$385,000	59.46%	$370,000	67.64%	$ 15,000	*8.18*
Total current assets	$647,500	100.00%	$547,000	100.00%	$100,500	
Current liabilities:						
Notes payable—banks:						
Secured	$ 5,000	.77%			$ 5,000	.77%
Unsecured	300,000	46.34	$100,000	18.28%	200,000	28.06
Total	$305,000	47.11%	$100,000	18.28%	$205,000	28.83%
Accounts payable and accrued	75,000	11.58	50,000	9.14	25,000	2.44
Total current liabilities	$380,000	58.69%	$150,000	27.42%	$230,000	31.27%
Net current assets	$267,500	41.31%	$397,000	72.58%	*$129,500*	31.27%
Dollars of current assets per dollar of current liabilities	$1.70		$3.65		*$1.95*	

FIRE-LOSS COMMENTS

Under its policy contracts, the company should carry insurance in an amount equal to 90 per cent. of the insurable value of its buildings and contents. The insurable value at December 31, 1930, was

Buildings, machinery and equipment (sound value) . . .		$400,000
Inventories:		
Coal stoves and ranges	$275,000	
Gas stoves and ranges	110,000	
		385,000
Total insurable value		$785,000

The amount of the insurance required under the 90 per cent. co-insurance clause was, therefore, 90 per cent. of $785,000 or	$706,500
The amount of insurance carried by the company	500,000
Deficiency	$206,500

The per cent. of loss insured by the insurance company
is 500,000÷706,500 or 70.77%
and the B Company is co-insurer to the extent of
206,500÷706,500 or 29.23%

B Company would collect from the insurance company,
(a) 70.77% of $100,000, or $70,771.41
(b) 70.77% of $600,000, or $424,628.45